# Altinga excelsa

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# *Altingia excelsa* Noroña

## Taxonomy and nomenclature

**Family**: Hamamelidaceae

**Synonyms**: *Liquidambar altingiana* Blume, *Sedgwickia cerasifolia* Griffith.

**Vernacular/ common names**: rasamala (Eng.) ramasala, mala (Java); tulasan, mandung (Sumatra); nantayok (Burma); sop (Laos, Thailand); hom, satu (Thailand).

## Distribution and habitat

*A. excelsa* is distributed from the Himalayas through the moister part of Burma toward Peninsular Malaysia, Sumatra and Java. In Java it is found only in the western part between 500 and 1500 m above sea level in humid mixed hill and montane forests. In Sumatra, it is distributed in Bukit Barisan. It occurs naturally mainly on humid sites with more than 100 mm rainfall per month, on rich volcanic soils. It is planted for reforestation mainly in West and Central Java. Close planting space is recommended, as the young rasamala trees tend to form multiple stems when openly exposed.

## Uses

The wood is very durable and can be used in direct contact with the soil. Because of its long, branchless boles, it is favoured for frames of bridges, columns and beams for construction, power transmission poles, telephone poles and railway sleepers. Furthermore, the timber is used for heavy construction, vehicle bodies, ship and boat building, heavy flooring, rafters, veneer, plywood and pulp. The young reddish-brown tips of the branches are eaten raw or cooked as a vegetable. In Java, in traditional medicine, the leaves are used to cure coughs. The tree produces an aromatic resin, which is used as incense.

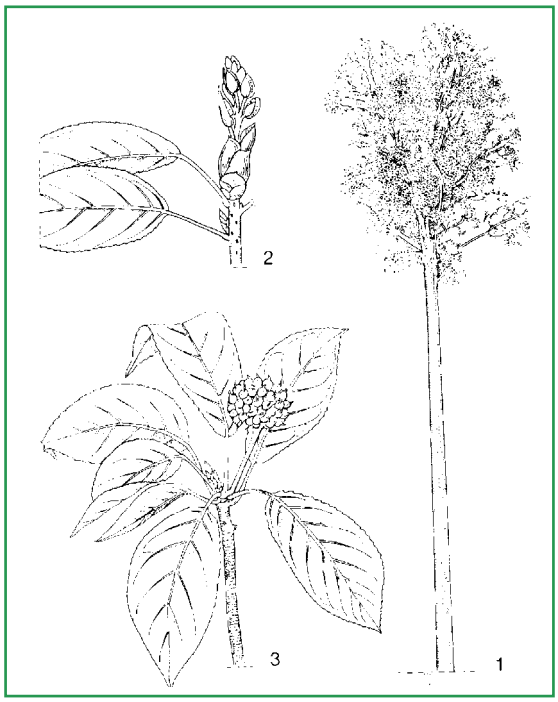
## Botanical description

A tall evergreen tree, 40-60 m, with straight bole and branched high above the ground; bark light grey and smooth; wood red. Young trees very elegant with dense crown and pyramidal shape, the crown later becoming more rounded. Leaves alternate, ovate, 6 - 12 cm long, 2.5 - 5.5 cm wide, with finely toothed margins. Flowers are unisexual with male and female flowers in separate inflorescences, but on the same tree. Female flowers are borne 4 - 18 together, in rounded heads that are 1.2-2.5 cm in diameter. Petals and sepals are absent in both female and male flowers.

## Fruit and seed description

**Fruit**: the fruit is a brown, four-roomed capsule that opens at maturity. Each of the four rooms contains one, occasionally two, fertile seeds. In addition to the fertile seeds, there can be up to 35 sterile seeds in each of the 4 compartments of the fruit.

**Seed**: the seed is flattened and surrounded by a sweetly scented wing. There are about 177,000 seeds/kg or 75,000 seeds/liter.




1, tree habit; 2, young male inflorescence; 3, fruiting branch. From: Plant Resources of South-East Asia No. 5(1) Timber trees: Major commercial timbers.

## Flowering and fruiting habit

In Java, the species flowers and fruits throughout the year, but with peak flowering in April-May. The peak fruiting season, and the best period for seed collection, is August - October. It is not known how the flowers are pollinated, but the morphology of the flower, that petals and sepals are absent and the numerous stamens, indicate pollination by wind. Furthermore, it is often associated with species of oaks, *Podocarpus* and *Castanopsis* which are normally wind-pollinated. The seeds are sweetly-scented and dispersed by ants and to a lesser extent by monkeys and birds that feed on the seeds.

## Harvest

The fruits must be collected from the tree before they turn black. If the fruits are collected later, many will be empty because the seeds have been dispersed.

## Processing and handling

Seed is extracted by drying the fruits in the sun for 2 days or by drying in a seed drier for 20 hours at 38 - 42° C. This will open the fruits and the seed can easily be extracted. A seed gravity table may be used to grade the seeds according to weight and thus separate the many empty seeds.

Stand of *Altingia excelsa* in West Java. Photo: F.D. Djam'an.

## Storage and viability

*A. excelsa* seeds are viable for only a short period and should be sown shortly after collection. In a storage test at Seed Research Development and Technology Centre in Bogor, it was possible to store seed with 5 to 8 percent moisture content at a temperature of 4 - 8ºC in sealed plastic bags for 12 weeks without loss of viability.

## Sowing and germination

The seeds should be soaked in cold water for 24 hours before sowing. The sowing medium is a mix of sand and soil (1 : 1). Germination starts about 10 days after sowing. One month old seedlings can be transplanted to plastic bags, preferably in a growing medium enriched with organic matter and fertilizer. Germination is epigean (cotelydons emerge above ground).

## Selected readings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